

AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraphs **beginning at page 2, line 21 and ending at page 11, line 25** with the following rewritten version:

The first aspect of the present invention directs to a hermetic compressor (11) provided with: a casing (20) to which an intake pipe (28) and a discharge pipe (29) are provided; and a compression mechanism (21) accommodated within the casing (20) for sucking from the intake pipe (28) and compressing a refrigerant, wherein a high pressure chamber (23) into which the refrigerant discharged from the compression mechanism (21) flows and which communicates with the discharge pipe (29) is formed within the casing (20), and lubricant oil retained at a bottom of the high pressure chamber (23) is supplied to the compression chamber (21). Further, the hermetic compressor (11) includes: a container member (31) which communicates with a bottom part of the high pressure chamber (23) so as to allow the lubricant oil to flow to and from the container member (31); and pressure reduction means or device (50) which sucks a gas refrigerant in the container member (31) and sending out the thus sucked gas refrigerant to the intake pipe (28) for reducing an inside pressure of the container member (31).

According to the second aspect of the present invention, the pressure reduction ~~means~~ device (50) sucks the gas refrigerant in the container member (31) intermittently in the first invention.

According to the third aspect of the present invention, in the second aspect of the present invention, the pressure reduction ~~means~~ device (50) includes a gas container (35) and a switching mechanism (51) which switches connection between a state where the gas container (35) communicates only with the intake pipe (28) and a state where the gas container (35) communicates only with the container member (31), and an operation for communicating the gas container (35) with the intake pipe (28) for pressure reduction and an operation for communicating the gas container (35) with the container member (31) are repeated alternately.

According to the fourth aspect of the present invention, in the third aspect of the present invention, the pressure reduction ~~means~~ device (50) includes a communication pipe (34) connected to an upper end of the container member (31) and the intake pipe (28) and

having the gas container (35), in the communication pipe (34) and the switching mechanism (51) is composed of opening/closing valves (36, 37) arranged respectively on sides of the gas container (35) in the communication pipe (34).

According to the fifth aspect of the present invention, in the first aspect of the present invention, the pressure reduction ~~means~~ device (50) includes a communication pipe (34) connected to an upper end of the container member (31) and the intake pipe (28) and an adjuster valve (40) arranged in the communication pipe (34) and capable of changing a degree of opening thereof.

According to the sixth aspect of the present invention, in any of the first to the fifth aspects of the present invention, an oil supply pump (30) is provided which sucks the lubricant oil retained at the bottom of the high pressure chamber (23) and supplies it to the compression mechanism (21), and the container member (31) communicates with the high pressure chamber (23) at a part lower than a level at which the oil supply pump (30) sucks the lubricant oil.

According to the seventh aspect of the present invention, in any of the first to sixth aspects of the present invention, an electric heater (53) is provided for heating liquid in the container member (31).

The eighth aspect of the present invention directs to a hermetic compressor (11) provided with: a casing (20) to which an intake pipe (28) and a discharge pipe (29) are provided; and a compression mechanism (21) accommodated within the casing (20) for sucking from the intake pipe (28) and compressing a refrigerant, wherein a high pressure chamber (23), into which the refrigerant discharged from the compression mechanism (21) flows and which communicates with the discharge pipe (29) is formed within the casing (20), and in which lubricant oil retained at a bottom of the high pressure chamber (23) is supplied to the compression chamber (23). Further, the hermetic compressor (11) includes: a pressure reduction ~~means~~ device (50) which sucks a gas refrigerant in the high pressure chamber (23) and sends it to the intake pipe (28) for temporally reducing an inside pressure of the high pressure chamber (23).

According to the ninth aspect of the present invention, in the eighth aspect of the present invention, the pressure reduction ~~means~~ device (50) includes a gas container (35) and a switching mechanism (53) which switches connection between a condition that the gas

container (35) communicates only with the intake pipe (28) and a condition that the gas container (35) communicates only with the high pressure chamber (23), and an operation for communicating the gas container (35) with the intake pipe (28) for pressure reduction and an operation for communicating the gas container (35) with the high pressure chamber (23) are repeated alternately to suck the gas refrigerant in the high pressure chamber (23) intermittently.

— Operation —

In the first aspect of the present invention, the compression mechanism (21) is accommodated within the casing (20) of the hermetic compressor (11). The compression mechanism (21) sucks the refrigerant flowing in the casing (20) through the intake pipe (28) and discharges the compressed refrigerant to the high pressure chamber (23). The refrigerant discharged to the high pressure chamber (23) is sent outside the casing (20) through the discharge pipe (29). The inside pressure of the high pressure chamber (23) is equal to the pressure of the refrigerant discharged from the compression mechanism (21), namely is high. The lubricant oil is retained at the bottom of the high pressure chamber (23) and is supplied to the compression mechanism (21).

The high pressure chamber (23) communicates at the bottom thereof with the container member (31). The lubricant oil in the high pressure chamber (23) flows to and from the container member (31). In other words, the pressure in the container member (31) is high as well as that in the high pressure chamber (23). The hermetic compressor (11) is provided with pressure reduction v (50). When the viscosity of the lubricant oil becomes low due to dissolution of a considerable amount of refrigerant into the lubricant oil for example, the pressure reduction ~~means~~ device (50) sucks the gas refrigerant in the container member (31) to introduce it into the intake pipe (28). In detail, the pressure reduction ~~means~~ device (50) sucks the gas refrigerant from the container member (31) by utilizing the intake pipe (28) of which pressure becomes low during the operation of the hermetic compressor (11).

The suction of the gas refrigerant in the container member (31) by the pressure reduction ~~means~~ device (50) reduces the inside pressure of the container member (31), which immediately reduces the pressure of the lubricant oil in the container member (31) and the dissolubility of the refrigerant to the lubricant oil is lowered. Accordingly, the amount of the refrigerant dissolving in the lubricant oil is reduced, so that the viscosity of the lubricant oil is

recovered. The lubricant oil of which viscosity is thus recovered returns to the high pressure chamber (23) from the container member (31) and is utilized for lubrication in the compression mechanism (21).

In the second aspect of the present invention, the pressure reduction means (50) sucks the gas refrigerant in the container member (31) intermittently. During the suction of the gas refrigerant by the pressure reduction ~~means~~ device (50), the inside pressure of the container member (31) is reduced and the refrigerant dissolving in the lubricant oil in the container member (31) is gasified, thereby recovering the viscosity of the lubricant oil. To the contrary, when the pressure reduction device ~~chamber~~ (50) halts the suction of the gas refrigerant, the inside pressure of the container member (31) increases, so that the lubricant oil, of which viscosity has been recovered, returns to the high pressure chamber (23) from the container member (31).

In the third ~~embodiment~~ aspect of the present invention, the gas container (35) and the switching mechanism (51) are provided in the pressure reduction ~~means~~ device (50). The switching mechanism (51) operates to switch the connection of gas container (35) between the condition that the gas container (35) communicates only with the intake pipe (28) and the condition that the gas container (35) communicates only with the container member (31). When the gas container (35) communicates with the intake pipe (28), the gas refrigerant in the gas container (35) is introduced to the intake pipe (28) to reduce the inside pressure of the gas container (35). Then, when the gas container (35), of which inside pressure has been reduced, communicates with the container member (31), the gas refrigerant in the container member (31) is introduced to the gas container (35) to reduce the inside pressure of the container member (31). When the inside pressure of the container member (31) is reduced, the refrigerant dissolving in the lubricant oil is gasified.

In the fourth aspect of the present invention, the communication pipe (34) is provided in the pressure reduction ~~means~~ device (50). The communication pipe (34) is connected to the upper end of the container member (31) and the intake pipe (28). The gas container (35) is arranged in the communication pipe (34). The opening/closing valves (36, 37) serving as the switching mechanism (51) are provided in the communication pipe (34) on the upper stream side and the downstream side of the gas container (35), respectively.

When the opening/closing valve (36) on the container member (31) side is closed and the opening/closing valve (37) on the intake pipe (28) side is opened in the pressure reduction ~~means~~ device (50), the gas container (35) communicates with the intake pipe (28) to reduce the pressure in the gas container (35). To the contrary, when the opening/closing valve (36) on the container member (31) side is opened and the opening/closing valve (37) on the intake pipe (28) side is closed in the pressure reduction ~~means~~ device (50), the gas container (35) communicates with the container member (31), so as to reduce the pressure in the container member (31).

In the fifth aspect of the present invention, the communication pipe (34) and the adjuster valve (40) is provide in the pressure reduction ~~means~~ device (50). The adjuster valve (40) is arranged in the communication pipe (34). When the adjuster valve (40) is opened, the gas refrigerant in the container member (31) is sucked out into the intake pipe (28) through the communication pipe (34). Accordingly, the inside pressure of the container member (31) is reduced, to gasify the refrigerant dissolving in the lubricant oil in the container member (31), with a result that the viscosity of the lubricant oil is recovered.

In the sixth aspect of the present invention, the oil supply pump (30) supplies the lubricant oil to the compression mechanism (21). In detail, the oil supply pump (30) sucks the lubricant oil retained at the bottom of the high pressure chamber (23) and supplies it to the compression mechanism (21). In this invention, the container member (31) communicates with the high pressure chamber (23) at a part lower than the level of the sucking portion of the oil supply pump (30). In other words, the oil supply pump (30) sucks the lubricant oil from a part above the level at which the container member (31) communicates.

It should be noted that there is a case where the refrigerant does not dissolve in the lubricant oil and the liquid refrigerant and the lubricant oil separate into two layers according to the temperature or the pressure. In general, because the liquid refrigerant is higher in density than the lubricant oil, the layer of the liquid refrigerant is located below the layer of the lubricant oil in the two-layer separation. In such a case, the liquid refrigerant mainly flows into the container member (31). When the pressure reduction ~~means~~ device (50) reduces the inside pressure of the container (31), the liquid refrigerant flown in the container member (31) is evaporated to be sent into the intake pipe (28). Thus, the boundary of the

two-layer separation between the liquid refrigerant and the lubricant oil is avoided to be located above the level at which the high pressure chamber (23) communicates with the container member (31), with a result that the oil supply pump (30) sucks the lubricant oil even in the state of two-layer separation.

In the seventh aspect of the present invention, the electric heater (53) is provided to the hermetic compressor (11). As stated above, the pressure reduction ~~means~~ device (50) reduces the pressure in the container member (31) by utilizing the intake pipe (28) of which pressure becomes lower during the operation of the hermetic compressor (11). In other words, the pressure reduction ~~means~~ device (50) reduces the pressure in the container member (31) only during the operation of the hermetic compressor (11). In contrast, when the electric heater (53) is conducted, the lubricant oil in the container member (31) is heated independent from the operation of the hermetic compressor (11), so that the lubricant oil in the container member (31) is heated and the refrigerant dissolving in the lubricant oil is gasified. In addition, if the liquid refrigerant remains in the container member (31) in the state of two-layer separation of the liquid refrigerant and the lubricant oil, the liquid refrigerant heated by the electric heater (53) is evaporated.

In the eighth aspect of the present invention, the compression mechanism (21) is accommodated within the casing (20) of the hermetic compressor (11). The compression mechanism (21) sucks the refrigerant flown in the casing (20) through the intake pipe (28) and discharges the compressed refrigerant to the high pressure chamber (23). The refrigerant discharged to the high pressure chamber (23) is sent outside the casing (20) through the discharge pipe (29). The inside pressure of the high pressure chamber (23) is equal to the pressure of the refrigerant discharged from the compression mechanism (21), namely, is high. Also, the lubricant oil retained at the bottom of the high pressure chamber (23) is supplied to the compression mechanism (21).

Further, the hermetic compressor (11) is provided with the pressure reduction ~~means~~ device (50). When the viscosity of the lubricant oil is lowered, for example, by dissolution of a considerable amount of refrigerant into the lubricant oil, the pressure reduction ~~means~~ device (50) sucks the gas refrigerant in the high pressure chamber (23) to introduce it to the intake pipe (28). In other words, the pressure reduction ~~means~~ device (50) sucks the gas

refrigerant from the high pressure chamber (23) by utilizing the intake pipe (28) of which pressure becomes lower during the operation of the hermetic compressor (11).

When the pressure reduction ~~means~~ device (50) sucks the gas refrigerant in the high pressure chamber (23), the inside pressure of the high pressure chamber (23) is temporarily lowered. The lowering of the inside pressure of the high pressure chamber (23) immediately reduces the pressure of the lubricant oil in the high pressure chamber (23), with a result of lowering the dissolubility of the refrigerant to the lubricant oil. For this reason, the amount of the refrigerant dissolving in the lubricant oil is reduced and the viscosity of the lubricant oil is recovered.

In the ninth aspect of the present invention, the gas container (35) and the switching mechanism (51) are provided in the pressure reduction ~~means~~ device (50). The switching mechanism (51) switches the connection of the gas container (35) between the condition that the gas container (35) communicates only with the intake pipe (28) and the condition that the gas container (35) communicates only with the high pressure chamber (23). When the gas container (35) communicates with the intake pipe (28), the gas refrigerant in the gas container (35) is sucked out into the intake pipe (28) to reduce the inside pressure of the gas container (35). Then, when the gas container (35), of which inside pressure has been reduced, communicates with the high pressure chamber (23), the gas refrigerant in the high pressure chamber (23) is sucked out into the gas container (35) to reduce the inside pressure of the high pressure chamber (23). When the inside pressure of the high pressure chamber (23) is reduced, the refrigerant dissolving in the lubricant oil in the high pressure chamber (23) is gasified.

~~Effects~~

According to the hermetic compressor (11) of the present invention, the pressure reduction ~~means~~ device (50) sucks the gas refrigerant in the container member (31) to reduce the inside pressure of the container member (31). When the inside pressure of the container member (31) is reduced, the pressure of the lubricant oil is immediately reduced and the dissolubility of the refrigerant to the lubricant oil is also lowered. In turn, the refrigerant dissolving in the lubricant oil is gasified, with a result that the viscosity of the lubricant oil is instantly recovered. Hence, the refrigerant dissolving in the lubricant oil is gasified and the viscosity thereof is recovered in shorter period in the present invention than that in the

conventional case where the refrigerant dissolving in the lubricant oil is gasified by heating the lubricant oil by a heater wound around the casing (20). As a result, lubrication malfunction caused due to lowering of the viscosity of the lubricant oil by dissolution of the refrigerant thereto can be surely avoided and the reliability of the hermetic compressor (11) can be enhanced.

Further, according to the hermetic compressor (11) in the third embodiment, the switching mechanism (51) operates to communicate the gas container (35), of which inside pressure is reduced, with the container member (31), so that the inside pressure of the container member (31) is reduced. In other words, the container member (31) does not directly communicate with the intake pipe (28) though the inside pressure of the container member (31) is reduced by utilizing the intake pipe (28) of reduced pressure in the hermetic compressor (11). For this reason, the inside pressure of the container member (31) is not so reduced as that of the intake pipe (28) even under reduced pressure, which prevents excessive flow of the lubricant oil to the container member (31). Thus, according to the present invention, the level of the lubricant oil in the high pressure chamber (23) is prevented from being excessively lowered at the pressure reduction in the container member (31), whereby the oil supply pump (30) can surely continue to supply the lubricant oil in the high pressure chamber (23) to the compression mechanism (21).

Further, according to the sixth aspect of the present invention, the container member (31) is arranged so as to communicate with the hermetic compressor (11) at a part lower than the level at which the oil supply pump (30) sucks the lubricant oil. Also, in the state of two-layer separation of the liquid refrigerant and the lubricant oil, the liquid refrigerant in the high pressure chamber (23) flowing in the container member (31) is evaporated. Thus, the boundary between the liquid refrigerant and the lubricant oil in the two-layer separation does not reach the level above the part where the high pressure chamber (23) communicates with the container member (31), so that the oil supply pump (30) always supplies the lubricant oil. Thus, according to the present invention, the oil supply pump (30) is prevented from supplying the liquid refrigerant in the two-layer separation to the compression mechanism (21), with a result that the lubrication malfunction in the compression mechanism (21) can be surely prevented and the reliability of the hermetic compressor (11) can be enhanced.

In addition, according to the seventh aspect of the present invention, the conduction of the electric heater (53) heats the lubricant oil in the container member (31), independent from the operation of the hermetic compressor (11), to gasify the refrigerant dissolving in the lubricant oil, which recovers the viscosity of the lubricant oil. Moreover, the electric heater (53) heats the liquid refrigerant in the container member (31) to evaporate it even in the two-layer separation of the liquid refrigerant and the lubricant oil. Hence, according to the present invention, the conduction of the electric heater (53) before activation enables to recover the viscosity of the lubricant oil, which surely prevents the lubrication malfunction in the compression mechanism (21) immediately after the activation and further enhances the reliability of the sealed compression mechanism (11).